Amendment to the Claims:

1. (Currently Amended) A method of determining total left ventricular (LV) interior volume during a plurality of phases of a cardiac cycle ~~from a cardiac cine series~~, said method comprising ~~the steps of~~:

acquiring a series of cardiac cine images including an end-diastole cardiac image at an end-diastole (ED) phase of the cardiac cycle and at least a second cardiac image at a second phase of the cardiac cycle, the second phase being different from the end-diastole phase;

delineating at least one of endocardial and epicardial contours of a left ventricle (LV) in ~~all slices of said cine series at~~ the end-diastole ~~(ED)~~cardiac image~~,~~;

calculating an end-diastole interior volume of the left ventricle (LV) in the end-diastole (ED) phase;

calculating an end-diastole phase ~~total ED~~ intensity value ($I_{T,ED}$) inside the at least one of the endocardial and epicardial contours ~~at the~~ of the end-diastole ~~ED~~cardiac image;~~,~~

applying the at least one of the endocardial and epicardial contours delineated for ~~at~~ the end-diastole (~~ED~~cardiac) image to the second cardiac image;~~all phases of the cardiac cycle, and~~

calculating a second phase ~~the total LV interior volume based on~~ intensity values for ~~each~~ a region of the second cardiac image ~~of the phases~~ inside at least one of the end-diastole phase and endocardial contours applied to the second cardiac image;~~delineated at ED and applied to all the phases, and the total ED intensity value ($I_{T,ED}$).~~

calculating a left ventricular interior volume in the second cardiac phase by weighting the end-diastole interior volume in accordance with a ratio of the second phase intensity value and the end-diastole phase ($I_{T,ED}$) intensity value.

2. (Currently Amended) The method according to claim ~~1~~4, further comprising calculating a mean intensity for myocardium and blood voxels at ED based on the delineated endocardial and epicardial contours.

3. (Previously Presented) The method according to claim 2, further comprising using the mean intensities for compensating myocardium enclosed in the endocardial contours delineated at ED during subsequent phases of the cardiac cycle.

4. (Currently Amended) A method of determining total left ventricular (LV) interior volume during a cardiac cycle from a cardiac cine series, said method comprising the steps of:

delineating endocardial and epicardial contours of a left ventricle in all slices of said cardiac cine series at end-diastole (ED),

calculating a total ED intensity value ($I_{T,ED}$) inside at least one of the contours at the ED,

applying the contours delineated at ED to all phases of the cardiac cycle, and

calculating the total LV interior volume based on (1) intensity values for each of the phases inside the endocardial contours delineated at ED and applied to all the phases, and (2) the total ED intensity value ($I_{T,ED}$),

~~The method according to claim 1,~~ wherein the total LV interior volume (V_{LV}) is calculated as

$$V_{LV} = \sum_{i=1}^{n} V_{ED,i} \frac{I_{T,i}}{I_{T,ED}},$$

wherein

n is a total number of slices comprising the LV total interior volume,

$V_{ED,i}$ is a calculated ~~interior~~ volume of slice number i of the LV at the end-diastole of the LV,

$I_{T,i}$ is a detected intensity of slice i within the ~~an~~ endocardial contour.

5. (Currently Amended) The method according to claim 1, wherein the ~~cine~~ series of cine images is a short-axis study of a ~~the~~ heart including ~~consisting of~~ multiple slices covering at least the left ventricle and multiple phases within the cardiac cycle.

6. (Currently Amended) The method according to claim 1, further comprising determining the LV volume from another series of cine images ~~sequences~~ acquired at

different stress levels, whereby the temporal behaviour of a ~~the~~ heart as a function of increasing stress is determined.

7. (Currently Amended) The method according to claim 1, wherein said cardiac cine series is~~/are~~ captured previously to said method on a device for imaging inside parts of a mammal body.

8. (Previously Presented) The method according to claim 7, wherein said device for imaging inside parts of a mammal body is a Magnetic Resonance (MR), Computer Tomography (CT), Nuclear Medicine (NM) or Ultrasound (US) device.

9. (Original) The method according to claim 8, wherein an MRI study comprises Steady State Free Precession (SSFP) images.

10. (Currently Amended) The method according to claim 1, further comprising compensating for heart motion during the acquisition of the series of cine images ~~of the heart~~.

11. (Currently Amended) A computer-readable medium having ~~embodied~~ stored thereon a computer program controlling ~~for processing by~~ a computer to perform the method according to claim 1.

~~for calculating total left ventricular (LV) volume during a cardiac cycle from a cine series, the computer program comprising:~~

~~a first code segment for delineating endocardial and epicardial contours of a left ventricle in all slices of said cine series at end-diastole (ED) and calculating a total ED intensity value ($I_{T,ED}$) inside at least one of the endocardial contours at the ED,~~

~~a second code segment for applying the endocardial contours delineated at ED to all phases of the cardiac cycle, and~~

~~a third code segment for calculating the total LV volume based on intensity values for each of the phases inside the endocardial contours delineated at ED and applied to all the phases, and the total ED intensity value ($I_{T,ED}$).~~

12. (Currently Amended) The computer-readable medium according to claim 11, wherein a ~~said~~ first code segment of the program automatically delineates the endocardial and epicardial contours.

13. (Currently Amended) The method of claim 1, further including: ~~wherein the compensating act includes~~ deleting a contribution of a ~~the~~ myocardium enclosed in the endocardial and epicardial contours.

14. (Cancelled)

15. (Currently Amended) The computer-readable medium of claim 11, wherein a ~~said third~~ code segment of the program calculates the total LV volume by:

dividing a first slice intensity value ($I_{T,i}$) associated with a first slice by the total ED intensity value ($I_{T,ED}$) to form a first fraction intensity value;

multiplying the first fraction intensity value with a calculated interior volume of the first slice of the LV at the ED to form a first slice volume of slice volumes; and

summing the slice volumes to form the total LV interior volume.

16. (Previously Presented) A method of determining total left ventricular (LV) interior volume during a phase of a cardiac cycle from a cardiac cine series, said method comprising the acts of:

delineating endocardial contours of a left ventricle in all slices of said cine series at end-diastole (ED),

applying the endocardial contours delineated at the ED to image slices of the phase of the cardiac cycle, and

calculating the total LV interior volume of the phase based on phase intensity values inside the endocardial contours delineated at the ED and applied to the image slices of the phase, and a total ED intensity value ($I_{T,ED}$) inside at least one of the endocardial contours at the ED.

17. (Previously Presented) The method of claim 16, wherein the calculating act includes the acts of:

dividing a first slice intensity value ($I_{T,i}$) of the phase intensity values associated with a first slice by the total ED intensity value ($I_{T,ED}$) to form a first fraction intensity value;

multiplying the first fraction intensity value with a calculated interior volume of the first slice of the LV at the ED to form a first slice volume of slice volumes; and

summing the slice volumes to form the total LV interior volume.

18. (Previously Presented) The method of claim 16, further comprising the acts of:

manually delineating an endocardial contour on ~~an~~ the end-diastole cardiac image of a slice to form a manual contour;

calculating ~~an~~ the end-diastole image volume based on a signal intensity due to blood contained in the image; ~~and~~

forcing the end-diastole image volume to coincide with the manual contour using a calculated factor; and

applying the calculated factor to intensity sums of a corresponding slice of a second cardiac image ~~further images of the slice~~.

19. (Currently Amended) The method of claim 1, further comprising the acts of:

manually delineating an endocardial contour on the end-diastole cardiac ~~an~~ image of a slice to form a manual contour;

calculating the end-diastole ~~an~~ image volume based on a signal intensity due to blood contained in the image; and

forcing the end-diastole image volume to coincide with the manual contour using a calculated factor; and

applying the calculated factor to intensity sums of a corresponding slice of the second cardiac image ~~further images~~ of the slice.

20. (Previously Presented) The computer-readable medium of claim 11, further comprising:

a ~~fourth~~ code segment for calculating an end-diastole cardiac image volume based on a signal intensity due to blood contained in an image surrounded by a manual contour formed by manually delineating an endocardial contour on the image;

~~a~~ another ~~fifth~~ code segment for forcing the end-diastole image volume to coincide with the manual contour using a calculated factor; and

a further ~~sixth~~ code segment for applying the calculated factor to intensity sums of a corresponding slice of a second cardiac image ~~further images of the slice~~.